**Amendments to the claims**

The listing of claims will replace all prior versions, and listings, of claims in the application.

Underlined expressions represent text which has been added, while strikethrough expressions are to be deleted.

**Listing of Claims**

1. (Currently Amended) A method for optical imaging of a light scattering object, the method comprising steps of [[;] :

i) selecting a plurality of time-gates for imaging an object;

ii) injecting a pulse of light at an injection port into said object at a time $t_0$;

iii) collecting light from said object at a plurality of collection ports at the selected plurality of time-gates to provide a plurality of optical signal based temporal point spread functions and collecting light only for selected time gates, and not for a series of consecutive time-gates; and

iv) introducing corresponding temporal delay to each one of the optical signal based temporal point spread functions for obtaining staggered optical based temporal spread point spread functions.

2. (Canceled)

3. (Previously Presented) The method as claimed in claim 1 wherein said plurality of collection ports are adjacent to one another and said temporal point spread functions are substantially identical.

4. (Previously Presented) The method as claimed in claim 3 wherein said time-gated signals span a time interval defined by an initial time and a final time which are set relative to $t_0$.

5. (Previously Presented) The method as claimed in claim 4 wherein said light collection is performed for a plurality of injection port/object/detector port geometries.

6. (Previously Presented) The method as claimed in claim 5 wherein said collection is based on one or more optical properties of said object.

7. (Previously Presented) The method as claimed in claim 5 wherein said initial time and said time-gated signals are estimated based on one or more optical properties of said object that influence propagation of said light within said object.

8. (Original) The method according to claim 7 wherein said one or more properties comprise thickness of said object.

9. (Currently amended) The method as claimed in claim 1 wherein said light collection of said time-gated signals comprises:

i) obtaining at least a first derivative of each temporal point spread function; and

ii) identifying one or more time intervals of each temporal point spread function in which a first derivative is zero at a point in said time interval thereby effecting said collection of said ~~time-gates~~ time-gated signals.

10. (Canceled)

11. (Previously Presented) The method as claimed in claim 9 wherein said time-gated signals are further selected based on an order of said derivative.

12. (Previously Presented) The method as claimed in claim 1 wherein said collection of said time-gated signals comprises:

i) obtaining one or more temporal point spread functions for each of a plurality of light scattering objects;

ii) obtaining at least a first derivative of each temporal point spread function;

iii) identifying one or more time interval of each temporal point spread function in which said at least first derivative is zero at a point in said time interval thereby effecting said staggering collection of said time-gated signals;

iv) retrievably storing said time-gated signals such that said time-gated signals are associated with at least one predetermined characteristic of a corresponding object; and

v) matching a characteristic of a new object to be imaged with said stored predetermined characteristics to identify corresponding time-gates to be used in imaging said new object.

13. (Previously Presented) The method as claimed in claim 1 wherein said step of light collection is performed using a time-gated detector.

14. (Original) The method as claimed in claim 13 wherein the time-gated detector is an ICCD camera.

15. (Previously Presented) The method as claimed in claim 1 wherein the two or more time-gated signals are simultaneously detected at two or more time-gated detectors having a synchronized acquisition time gate.

16. (Original) The method as claimed in claim 15 wherein the step of simultaneously detecting comprises detecting said selected time-gates using a time-gated detector comprising a 2-dimensional array of pixels.

17. (Previously Presented) The method as claimed in claim 16 wherein the time-gated detector is an ICCD camera.

18. (Original) The method as claimed in claim 1 wherein the collecting of the light is achieved by providing one or more optical fibers.

19. (Previously Presented) The method as claimed in claim 18 further comprising adjusting a relative length of fibers to introduce the relative temporal delay.

20. (Original) The method as claimed in claim 19 wherein the fibers are grouped together into one or more bundles.

21. (Original) The method according to claim 20 wherein each fiber in the one or more bundles is directed to a distinct detection position of the time-gated detector or to a distinct time-gated detector.

22. (Original) The method as claimed in claim 21 wherein the one or more bundles are spatially localized such as to collect light from one or more desired areas of said object.

23. (Original) The method as claimed in claim 22 wherein the one or more bundles are coupled to one or more time-gated detectors.

24. (Previously Presented) A system for optical imaging of a light scattering object the system comprising:

i) at least one light injection port; and

ii) a light collecting apparatus to collect light from an object at plurality of collection ports and provide a plurality of sequential time gated optical signal based temporal point spread functions; and said light collecting apparatus collects light only for selected time gates, and not for a series of consecutive time-gates.

25. (Currently Amended) The system according to claim 24 wherein the collection ports are adjacent to one another .

26. (Previously Presented) The system as claimed in claim 25 wherein the light collecting apparatus comprises one or more optical fibers.

27. (Previously Presented) The system as claimed in claim 26 wherein the optical delay feature comprises a difference in the relative length of the optical fibers.